

CLAIMS

1. A purified secreted *Chlamydia* polypeptide, wherein said *Chlamydia* polypeptide is homologous to one or more *Chlamydia pneumoniae* proteins selected from the group consisting of CPn0104, CPn0206, CPn0210, CPn0399, CPn0405, CPn0443, CPn0480, CPn0489, CPn0490, CPn0497, CPn0522, CPn0556, CPn0582, CPn0588, CPn0595, CPn0671, CPn0673, CPn0681, CPn0712, CPn0720, CPn0725, CPn0729, CPn0746, CPn0755, CPn0761, CPn0764, CPn0770, CPn0774, CPn0792, CPn0853, CPn0859, CPn0879, CPn0906, CPn0939, CPn1002, CPn1005, CPn1007, CPn1019, CPn1020, CPn1032, and CPn1058; or a fragment thereof.
2. The polypeptide according to Claim 1, wherein said *Chlamydia* polypeptide is one or more *Chlamydia pneumoniae* proteins selected from the group consisting of CPn0104, CPn0206, CPn0210, CPn0399, CPn0405, CPn0443, CPn0480, CPn0489, CPn0490, CPn0497, CPn0522, CPn0556, CPn0582, CPn0588, CPn0595, CPn0671, CPn0673, CPn0681, CPn0712, CPn0720, CPn0725, CPn0729, CPn0746, CPn0755, CPn0761, CPn0764, CPn0770, CPn0774, CPn0792, CPn0853, CPn0859, CPn0879, CPn0906, CPn0939, CPn1002, CPn1005, CPn1007, CPn1019, CPn1020, CPn1032, and CPn1058; or a fragment thereof.
3. The polypeptide according to Claim 1, wherein said *Chlamydia* polypeptide is one or more *Chlamydia pneumoniae* proteins selected from the group consisting of CPn0490, CPn0595, CPn0671, CPn0712, CPn0725, CPn0761, CPn0770, CPn0774, CPn0859, CPn0906, CPn1002, and CPn1005, or a fragment thereof, or wherein said *Chlamydia* polypeptide is homologous to one or more *Chlamydia pneumoniae* proteins selected from the group consisting of CPn0490, CPn0595, CPn0671, CPn0712, CPn0725, CPn0761, CPn0770, CPn0774, CPn0859, CPn0906, CPn1002, and CPn1005, or a fragment thereof.
4. The polypeptide according to Claim 1, wherein the homologous *Chlamydia* polypeptide is a *Chlamydia pneumoniae* protein.
5. The polypeptide according to Claim 1, wherein the homologous *Chlamydia* polypeptide is a *Chlamydia trachomatis* protein selected from the group consisting of CT387, CT476, CT550, CT606.1, CT610, CT642, CT652.1, CT664, CT718, CT763, CT845, and CT848; or a fragment thereof.
6. The polypeptide according to Claim 1, wherein the homologous *Chlamydia* polypeptide is a *Chlamydia psittaci* protein selected from the group consisting of Psi0330,

Psi0379, Psi0595, Psi0648, Psi0671, Psi0705, Psi0710, Psi0761, Psi0774, Psi1002, Psi1005, Psi1022, and Psi1058; or a fragment thereof.

7. The polypeptide according to Claim 1, wherein said polypeptide is identified by its expression by a Gram-negative bacterial strain and secretion by the type III secretion pathway of said bacterial strain.

8. The polypeptide according to Claim 1, wherein said Gram-negative strain containing a type III secretion pathway is a *Shigella* strain.

9. The polypeptide according to Claim 1, wherein said polypeptide is selected by a method for identifying polypeptides secreted by *Chlamydia* comprising (a) providing a recombinant expression vector containing at least a polynucleotide coding for the polypeptide of interest; (b) transforming a Gram-negative strain containing a type III secretion pathway with said recombinant vector; (c) expressing this vector in the Gram-negative strain transformed in (b); and (d) detecting the secretion of said polynucleotide expression product; wherein the secretion of said expression product indicates that it corresponds to a secreted *Chlamydia* polypeptide.

10. The polypeptide according to Claim 9, wherein said polypeptide is from *Chlamydia pneumoniae*.

11. The polypeptide according to Claim 9, wherein said Gram-negative strain containing a type III secretion pathway is a *Shigella* strain.

12. The polypeptide according to Claim 1, wherein said polypeptide is selected by a method for identifying polypeptides secreted by *Chlamydia* comprising (a) providing a recombinant expression vector comprising at least the DNA coding for the polypeptide of interest fused to a reporter gene; (b) transforming a Gram-negative strain containing a type III secretion pathway with said recombinant vector; (c) expressing this vector in the Gram-negative strain transformed in (b); and (d) detecting the secretion of said reporter gene expression product; wherein the secretion of said expression product indicates that the fused DNA contains at least a polynucleotide corresponding to a secreted *Chlamydia* polypeptide.

13. The polypeptide according to Claim 12, wherein said polypeptide is from *Chlamydia pneumoniae*.

14. The polypeptide according to Claim 12, wherein said Gram-negative strain containing a type III secretion pathway is a *Shigella* strain.

15. A purified polynucleotide encoding at least one polypeptide according to Claim 1 or a purified polynucleotide which hybridizes to said purified polynucleotide encoding at least one polypeptide according to Claim 1 under stringent conditions.

16. The purified polynucleotide according to Claim 15, wherein said polynucleotide is a primer or a probe.

17. An immunogenic composition comprising at least a polypeptide according to Claim 1 or an immunogenic fragment thereof.

5 18. A vaccinating composition against *Chlamydia* infection wherein said composition comprises at least one polypeptide according to Claim 1 or an immunogenic fragment thereof along with a pharmaceutically acceptable carrier.

19. The vaccinating composition according to Claim 18, wherein said polypeptide is from *Chlamydia pneumoniae*.

10 20. The vaccinating composition according to Claim 18, wherein said infection contributes to atherosclerosis.

21. The vaccinating composition according to Claim 18, wherein said infection is a sexually transmitted disease.

15 22. The vaccinating composition according to Claim 18, wherein said infection is a respiratory disease.

23. The vaccinating composition according to Claim 18, wherein said respiratory disease is bronchitis.

24. A complex comprising the polypeptide of Claim 1 and an antibody directed against said polypeptide.

20 25. A complex comprising the polypeptide of Claim 2 and an antibody directed against said polypeptide.

26. An antibody against *Chlamydia* wherein said antibody is directed against the polypeptide according to Claim 1 or an immunogenic fragment thereof.

25 27. The antibody according to Claim 26, wherein said polypeptide is from *Chlamydia pneumoniae*.

28. A method for diagnosing a *Chlamydia* infection in an animal wherein said method comprises: (a) providing an animal sample of a tissue suspected to be infected by *Chlamydia*; (b) bringing said sample into contact with an antibody according to Claim 24; and (c) detecting antigen-antibody complex; wherein said complex is indicative of a
30 *Chlamydia* infection in said animal.

29. The method according to Claim 28, wherein said *Chlamydia* infection is a *Chlamydia pneumoniae* infection.

30. A method of preventing or treating a *Chlamydia* infection in an animal, which comprises administering an effective amount of an antibody according to Claim 26, or an immunogenic fragment thereof, to an animal in need thereof.

31. The method according to Claim 30, wherein said *Chlamydia* infection is a *Chlamydia pneumoniae* infection.

32. A method for diagnosing a *Chlamydia* infection in an animal wherein said method comprises (a) providing a polypeptide according to Claim 1, or an immunogenic fragment thereof, optionally labeled; (b) bringing said polypeptide or immunogenic fragment thereof into contact with a serum sample of said animal; and (c) detecting complexes formed between said polypeptide or immunogenic fragment thereof and antibodies contained in the serum sample; wherein said complexes are indicative of a *Chlamydia* infection in said animal.

33. The method according to Claim 32, wherein said *Chlamydia* infection is a *Chlamydia pneumoniae* infection.

34. A method of detecting *Chlamydia* in an animal wherein said method comprises (a) providing an animal sample of a tissue suspected to be infected by *Chlamydia*; (b) adding a primer pair for a polypeptide according to Claim 1 to the tissue sample; (c) amplifying a polynucleotide that encodes for the polypeptide which corresponds to the primer pair selected; and (d) detecting the presence of *Chlamydia* by the presence or absence of said polynucleotide.

35. A method of screening for an active molecule inhibiting the secretion of a secreted *Chlamydia* polypeptide, comprising (a) supplying an active molecule to a culture of *Chlamydia*; (b) growing or incubating said culture for a time and under conditions suitable for said active molecule to exert an activity upon said culture; (c) adding a primer pair for a polypeptide according to Claim 1 to the culture; (d) amplifying a polynucleotide that encodes for the polypeptide which corresponds to the primer pair selected; and (e) detecting the presence of the secreted *Chlamydia* polypeptide by the presence or absence of said polynucleotide.

36. A plasmid for expression of secreted *Chlamydia* polypeptide wherein said plasmid contains at least a polynucleotide coding for a polypeptide according to Claim 1.

37. The plasmid according to Claim 36, wherein said polypeptide is from *Chlamydia pneumoniae*.

38. The plasmid according to Claim 36, wherein said polynucleotide is further fused to a reporter gene.

39. The plasmid according to Claim 38, wherein a vector deposited at C.N.C.M. on December 13, 2000 with accession No. I-2593 is used for the construction of said plasmid.

40. A recombinant Gram-negative strain, wherein said strain is transformed by the plasmid according to Claim 36.

5 41. The recombinant Gram-negative strain according to Claim 40, wherein said strain is a *Shigella* strain.

42. A method of preventing or treating a *Chlamydia* infection in an animal which comprises administering an effective amount of a purified secreted *Chlamydia* polypeptide, wherein said *Chlamydia* polypeptide is homologous to one or more *Chlamydia pneumoniae* proteins selected from the group consisting of CPn0104, CPn0206, CPn0210, CPn0399, CPn0405, CPn0443, CPn0480, CPn0489, CPn0490, CPn0497, CPn0522, CPn0556, CPn0582, CPn0588, CPn0595, CPn0671, CPn0673, CPn0681, CPn0712, CPn0720, CPn0725, CPn0729, CPn0746, CPn0755, CPn0761, CPn0764, CPn0770, CPn0774, CPn0792, CPn0853, CPn0859, CPn0879, CPn0906, CPn0939, CPn1002, CPn1005, CPn1007, CPn1019, CPn1020, CPn1032, and CPn1058; or a fragment thereof.

15 43. The method according to Claim 42, wherein said *Chlamydia* polypeptide is one or more *Chlamydia pneumoniae* proteins selected from the group consisting of CPn0104, CPn0206, CPn0210, CPn0399, CPn0405, CPn0443, CPn0480, CPn0489, CPn0490, CPn0497, CPn0522, CPn0556, CPn0582, CPn0588, CPn0595, CPn0671, CPn0673, CPn0681, CPn0712, CPn0720, CPn0725, CPn0729, CPn0746, CPn0755, CPn0761, CPn0764, CPn0770, CPn0774, CPn0792, CPn0853, CPn0859, CPn0879, CPn0906, CPn0939, CPn1002, CPn1005, CPn1007, CPn1019, CPn1020, CPn1032, and CPn1058; or a fragment thereof.

25 44. The method according to Claim 42, wherein said *Chlamydia* infection is a *Chlamydia pneumoniae* infection.

45. The method according to Claim 42, wherein said *Chlamydia* polypeptide is identified by its secretion in a Gram-negative bacterial strain containing a type III secretion pathway.

30 46. The method according to Claim 42, wherein said animal is selected from the group consisting of a human, an equine, a bovine, a porcine, a caprine, a ovine, a bird, a dog, and a cat.

47. The method according to Claim 42, wherein said animal is a human.

48. A purified secreted *Chlamydia* polypeptide obtainable by a type III secretion pathway, wherein said *Chlamydia* polypeptide is one or more *Chlamydia pneumoniae*

proteins selected from the group consisting of CPn0104, CPn0206, CPn0210, CPn0399, CPn0405, CPn0443, CPn0480, CPn0489, CPn0490, CPn0497, CPn0522, CPn0556, CPn0582, CPn0588, CPn0595, CPn0671, CPn0673, CPn0681, CPn0712, CPn0720, CPn0725, CPn0729, CPn0746, CPn0755, CPn0761, CPn0764, CPn0770, CPn0774, CPn0792, CPn0853, CPn0859, CPn0879, CPn0906, CPn0939, CPn1002, CPn1005, CPn1007, CPn1019, CPn1020, CPn1032, and CPn1058; or a fragment thereof; or a polypeptide recognized by an antibody raised against one or more *Chlamydia pneumoniae* proteins selected from the group consisting of CPn0104, CPn0206, CPn0210, CPn0399, CPn0405, CPn0443, CPn0480, CPn0489, CPn0490, CPn0497, CPn0522, CPn0556, CPn0582, CPn0588, CPn0595, CPn0671, CPn0673, CPn0681, CPn0712, CPn0720, CPn0725, CPn0729, CPn0746, CPn0755, CPn0761, CPn0764, CPn0770, CPn0774, CPn0792, CPn0853, CPn0859, CPn0879, CPn0906, CPn0939, CPn1002, CPn1005, CPn1007, CPn1019, CPn1020, CPn1032, and CPn1058; or a fragment thereof.

49. A purified secreted *Chlamydia* polypeptide, wherein said *Chlamydia* polypeptide is homologous to one or more *Chlamydia trachomatis* proteins selected from the group consisting of CT387, CT476, CT550, CT606.1, CT610, CT642, CT652.1, CT664, CT718, CT763, CT845, and CT848; or a fragment thereof.

50. The polypeptide according to Claim 49, wherein the homologous *Chlamydia* polypeptide is a *Chlamydia trachomatis* protein.

51. The polypeptide according to Claim 49, wherein said polypeptide is identified by its expression by a Gram-negative bacterial strain and secretion by the type III secretion pathway of said bacterial strain.

52. The polypeptide according to Claim 49, wherein said *Chlamydia* polypeptide is one or more *Chlamydia trachomatis* proteins selected from the group consisting of CT387, CT476, CT550, CT606.1, CT610, CT642, CT652.1, CT664, CT718, CT763, CT845, and CT848; or a fragment thereof.

53. The polypeptide according to Claim 49, wherein said Gram-negative strain containing a type III secretion pathway is a *Shigella* strain.

54. The polypeptide according to Claim 49, wherein said polypeptide is selected by a method for identifying polypeptides secreted by *Chlamydia trachomatis* comprising (a) providing a recombinant expression vector containing at least a polynucleotide coding for the polypeptide of interest; (b) transforming a Gram-negative strain containing a type III secretion pathway with said recombinant vector; (c) expressing this vector in the Gram-negative strain transformed in (b); and (d) detecting the secretion of said polynucleotide

expression product; wherein the secretion of said expression product indicates that it corresponds to a secreted *Chlamydia trachomatis* polypeptide.

55. The polypeptide according to Claim 54, wherein said Gram-negative strain containing a type III secretion pathway is a *Shigella* strain.

5 56. The polypeptide according to Claim 49, wherein said polypeptide is selected by a method for identifying polypeptides secreted by *Chlamydia trachomatis* comprising (a) providing a recombinant expression vector comprising at least the DNA coding for the polypeptide of interest fused to a reporter gene; (b) transforming a Gram-negative strain containing a type III secretion pathway with said recombinant vector; (c) expressing this
10 vector in the Gram-negative strain transformed in (b); and (d) detecting the secretion of said reporter gene expression product; wherein the secretion of said expression product indicates that the fused DNA contains at least a polynucleotide corresponding to a secreted *Chlamydia trachomatis* polypeptide.

15 57. The polypeptide according to Claim 56, wherein said Gram-negative strain containing a type III secretion pathway is a *Shigella* strain.

58. A purified polynucleotide encoding at least one polypeptide according to Claim 49 or a purified polynucleotide which hybridizes to said purified polynucleotide encoding at least one polypeptide according to Claim 49 under stringent conditions.

20 59. The purified polynucleotide according to Claim 58, wherein said polynucleotide is a primer or a probe.

60. An immunogenic composition comprising at least a polypeptide according to Claim 49 or an immunogenic fragment thereof.

25 61. A vaccinating composition against *Chlamydia trachomatis* infection wherein said composition comprises at least one polypeptide according to Claim 49 or an immunogenic fragment thereof along with a pharmaceutically acceptable carrier.

62. The vaccinating composition according to Claim 61, wherein said infection is a sexually transmitted disease.

63. An antibody against *Chlamydia trachomatis* wherein said antibody is directed against the polypeptide according to Claim 49 or an immunogenic fragment thereof.

30 64. A method for diagnosing a *Chlamydia trachomatis* infection in an animal wherein said method comprises: (a) providing an animal sample of a tissue suspected to be infected by *Chlamydia trachomatis*; (b) bringing said sample into contact with an antibody according to Claim 63; and (c) detecting antigen-antibody complex; wherein said complex is indicative of a *Chlamydia trachomatis* infection in said animal.

65. A method of preventing or treating a *Chlamydia* infection in an animal, which comprises administering an effective amount of an antibody according to Claim 63, or an immunogenic fragment thereof, to an animal in need thereof.

5 66. A method for diagnosing a *Chlamydia trachomatis* infection in an animal wherein said method comprises (a) providing a polypeptide according to Claim 49, or an immunogenic fragment thereof, optionally labeled; (b) bringing said polypeptide or immunogenic fragment thereof into contact with a serum sample of said animal; and (c) detecting complexes formed between said polypeptide or immunogenic fragment thereof and antibodies contained in the serum sample; wherein said complexes are indicative of a
10 *Chlamydia trachomatis* infection in said animal.

67. A method of detecting *Chlamydia* in an animal wherein said method comprises (a) providing an animal sample of a tissue suspected to be infected by *Chlamydia*; (b) adding a primer pair for a polypeptide according to Claim 49 to the tissue sample; (c) amplifying a polynucleotide that encodes for the polypeptide which corresponds to the primer pair
15 selected; and (d) detecting the presence of *Chlamydia* by the presence or absence of said polynucleotide.

68. A method of screening for an active molecule inhibiting the secretion of a secreted *Chlamydia* polypeptide, comprising (a) supplying an active molecule to a culture of *Chlamydia*; (b) growing or incubating said culture for a time and under conditions suitable
20 for said active molecule to exert an activity upon said culture; (c) adding a primer pair for a polypeptide according to Claim 49 to the culture; (d) amplifying a polynucleotide that encodes for the polypeptide which corresponds to the primer pair selected; and (e) detecting the presence of the secreted *Chlamydia* polypeptide by the presence or absence of said polynucleotide.

25 69. A plasmid for expression of secreted *Chlamydia trachomatis* polypeptide wherein said plasmid contains at least a polynucleotide coding for a polypeptide according to Claim 49.

70. The plasmid according to Claim 69, wherein said polynucleotide is further fused to a reporter gene.

30 71. The plasmid according to Claim 70, wherein a vector deposited at C.N.C.M. on December 13, 2000 with accession No. I-2593 is used for the construction of said plasmid.

72. A recombinant Gram-negative strain, wherein said strain is transformed by a plasmid according to Claim 69.

73. The recombinant Gram-negative strain according to Claim 72, wherein said strain is a *Shigella* strain.

74. A method of preventing or treating a *Chlamydia* infection in an animal, which comprises administering an effective amount of a purified secreted *Chlamydia* polypeptide, wherein said *Chlamydia* polypeptide is homologous to one or more *Chlamydia trachomatis* proteins selected from the group consisting of CT387, CT476, CT550, CT606.1, CT610, CT642, CT652.1, CT664, CT718, CT763, CT845, and CT848; or a fragment thereof.

75. The method according to Claim 74, wherein said *Chlamydia* polypeptide is one or more *Chlamydia trachomatis* proteins selected from the group consisting of CT387, CT476, CT550, CT606.1, CT610, CT642, CT652.1, CT664, CT718, CT763, CT845, and CT848; or a fragment thereof.

76. The method according to Claim 74, wherein said *Chlamydia* infection is a *Chlamydia trachomatis* infection.

77. The method according to Claim 74, wherein said *Chlamydia* polypeptide is identified by its secretion in a Gram-negative bacterial strain containing a type III secretion pathway.

78. The method according to Claim 74, wherein said animal is selected from the group consisting of a human, an equine, a bovine, a porcine, a caprine, a ovine, a bird, a dog, and a cat.

79. The method according to Claim 74, wherein said animal is a human.

80. A purified secreted *Chlamydia* polypeptide, wherein said *Chlamydia* polypeptide is homologous to one or more *Chlamydia psittaci* proteins selected from the group consisting of Psi0330, Psi0379, Psi0595, Psi0648, Psi0671, Psi0705, Psi0710, Psi0761, Psi0774, Psi1002, Psi1005, Psi1022, and Psi1058; or a fragment thereof.

81. The polypeptide according to Claim 80, wherein the homologous *Chlamydia* polypeptide is a *Chlamydia psittaci* protein.

82. The polypeptide according to Claim 80, wherein said polypeptide is identified by its expression by a Gram-negative bacterial strain and secretion by the type III secretion pathway of said bacterial strain.

83. The polypeptide according to Claim 80, wherein said *Chlamydia* polypeptide is one or more *Chlamydia psittaci* proteins selected from the group consisting of Psi0330, Psi0379, Psi0595, Psi0648, Psi0671, Psi0705, Psi0710, Psi0761, Psi0774, Psi1002, Psi1005, Psi1022, and Psi1058; or a fragment thereof.

84. The polypeptide according to Claim 80, wherein said Gram-negative strain containing a type III secretion pathway is a *Shigella* strain.

85. The polypeptide according to Claim 80, wherein said polypeptide is selected by a method for identifying polypeptides secreted by *Chlamydia psittaci* comprising (a) providing
5 a recombinant expression vector containing at least the polynucleotide coding for the polypeptide of interest; (b) transforming a Gram-negative strain containing a type III secretion pathway with said recombinant vector; (c) expressing this vector in the Gram-negative strain transformed in (b); and (d) detecting the secretion of said polynucleotide expression product; wherein the secretion of said expression product indicates that it
10 corresponds to a secreted *Chlamydia psittaci* polypeptide.

86. The polypeptide according to Claim 85, wherein said Gram-negative strain containing a type III secretion pathway is a *Shigella* strain.

87. The polypeptide according to Claim 80, wherein said polypeptide is selected by a method for identifying polypeptides secreted by *Chlamydia psittaci* comprising (a) providing
15 a recombinant expression vector comprising at least the DNA coding for the polypeptide of interest fused to a reporter gene; (b) transforming a Gram-negative strain containing a type III secretion pathway with said recombinant vector; (c) expressing this vector in the Gram-negative strain transformed in (b); and (d) detecting the secretion of said reporter gene expression product; wherein the secretion of said expression product indicates that the fused
20 DNA contains at least a polynucleotide corresponding to a secreted *Chlamydia psittaci* polypeptide.

88. The polypeptide according to Claim 87, wherein said Gram-negative strain containing a type III secretion pathway is a *Shigella* strain.

89. A purified polynucleotide encoding at least one polypeptide according to Claim
25 80 or a purified polynucleotide which hybridizes to said purified polynucleotide encoding at least one polypeptide according to Claim 80 under stringent conditions.

90. The purified polynucleotide according to Claim 89, wherein said polynucleotide is a primer or a probe.

91. An immunogenic composition comprising at least a polypeptide according to
30 Claim 80 or an immunogenic fragment thereof.

92. A vaccinating composition against *Chlamydia psittaci* infection wherein said composition comprises at least one polypeptide according to Claim 80 or an immunogenic fragment thereof along with a pharmaceutically acceptable carrier.

93. The vaccinating composition according to Claim 92, wherein said infection is a sexually transmitted disease.

94. An antibody against *Chlamydia psittaci*, wherein said antibody is directed against the polypeptide according to Claim 80 or an immunogenic fragment thereof.

5 95. A method for diagnosing a *Chlamydia psittaci* infection in an animal wherein said method comprises: (a) providing an animal sample of a tissue suspected to be infected by *Chlamydia psittaci*; (b) bringing said sample into contact with an antibody according to Claim 94; and (c) detecting antigen-antibody complex; wherein said complex is indicative of a *Chlamydia psittaci* infection in said animal.

10 96. A method of preventing or treating a *Chlamydia* infection in an animal, which comprises administering an effective amount of an antibody according to Claim 94, or an immunogenic fragment thereof, to an animal in need thereof.

15 97. A method for diagnosing a *Chlamydia psittaci* infection in an animal wherein said method comprises (a) providing a polypeptide according to Claim 80, or an immunogenic fragment thereof, optionally labeled; (b) bringing said polypeptide or immunogenic fragment thereof into contact with a serum sample of said animal; and (c) detecting complexes formed between said polypeptide or immunogenic fragment thereof and antibodies contained in the serum sample; wherein said complexes are indicative of a *Chlamydia psittaci* infection in said animal.

20 98. A method of detecting *Chlamydia* in an animal wherein said method comprises (a) providing an animal sample of a tissue suspected to be infected by *Chlamydia*; (b) adding a primer pair for a polypeptide according to Claim 80 to the tissue sample; (c) amplifying a polynucleotide that encodes for the polypeptide which corresponds to the primer pair selected; and (d) detecting the presence of *Chlamydia* by the presence or absence of said
25 polynucleotide.

99. A method of screening for an active molecule inhibiting the secretion of a secreted *Chlamydia* polypeptide, comprising (a) supplying an active molecule to a culture of *Chlamydia*; (b) growing or incubating said culture for a time and under conditions suitable for said active molecule to exert an activity upon said culture; (c) adding a primer pair for a
30 polypeptide according to Claim 80 to the culture; (d) amplifying a polynucleotide that encodes for the polypeptide which corresponds to the primer pair selected; and (e) detecting the presence of the secreted *Chlamydia* polypeptide by the presence or absence of said polynucleotide.

100. A plasmid for expression of secreted *Chlamydia psittaci* polypeptide, wherein said plasmid contains at least DNA coding for a polypeptide according to Claim 80.

101. The plasmid according to Claim 100, wherein said DNA is further fused to a reporter gene.

5 102. The plasmid according to Claim 101, wherein a vector deposited at C.N.C.M. on December 13, 2000 with accession No. I-2593 is used for the construction of said plasmid.

103. A recombinant Gram-negative strain, wherein said strain is transformed by a plasmid according to Claim 100.

10 104. The recombinant Gram-negative strain according to Claim 103, wherein said strain is a *Shigella* strain.

105. A method of preventing or treating a *Chlamydia* infection in an animal, which comprises administering an effective amount of a purified secreted *Chlamydia* polypeptide, wherein said *Chlamydia* polypeptide is homologous to one or more *Chlamydia psittaci* proteins selected from the group consisting of Psi0330, Psi0379, Psi0595, Psi0648, Psi0671, 15 Psi0705, Psi0710, Psi0761, Psi0774, Psi1002, Psi1005, Psi1022, and Psi1058; or a fragment thereof.

106. The method according to Claim 105, wherein said *Chlamydia* polypeptide is one or more *Chlamydia psittaci* proteins selected from the group consisting of Psi0330, Psi0379, Psi0595, Psi0648, Psi0671, Psi0705, Psi0710, Psi0761, Psi0774, Psi1002, Psi1005, Psi1022, 20 and Psi1058; or a fragment thereof.

107. The method according to Claim 105, wherein said *Chlamydia* infection is a *Chlamydia psittaci* infection.

108. The method according to Claim 105, wherein said *Chlamydia* polypeptide is identified by its secretion in a Gram-negative bacterial strain containing a type III secretion 25 pathway.

109. The method according to Claim 105, wherein said animal is selected from the group consisting of a human, an equine, a bovine, a porcine, a caprine, a ovine, a bird, a dog, and a cat.

110. The method according to Claim 105, wherein said animal is a human.

30 111. A purified polynucleotide obtainable by a method comprising (a) contacting a *Chlamydia* DNA fragment with a primer pair selected from the group consisting of:

Forward primer	Reverse primer
SEQ ID NO: 133	SEQ ID NO: 250
SEQ ID NO: 134	SEQ ID NO: 251
SEQ ID NO: 135	SEQ ID NO: 252
SEQ ID NO: 136	SEQ ID NO: 253
SEQ ID NO: 137	SEQ ID NO: 254
SEQ ID NO: 138	SEQ ID NO: 255
SEQ ID NO: 139	SEQ ID NO: 256
SEQ ID NO: 140	SEQ ID NO: 257
SEQ ID NO: 141	SEQ ID NO: 258
SEQ ID NO: 142	SEQ ID NO: 259
SEQ ID NO: 143	SEQ ID NO: 260
SEQ ID NO: 144	SEQ ID NO: 261
SEQ ID NO: 145	SEQ ID NO: 262
SEQ ID NO: 146	SEQ ID NO: 263
SEQ ID NO: 147	SEQ ID NO: 264
SEQ ID NO: 148	SEQ ID NO: 265
SEQ ID NO: 149	SEQ ID NO: 266
SEQ ID NO: 150	SEQ ID NO: 267
SEQ ID NO: 151	SEQ ID NO: 268
SEQ ID NO: 152	SEQ ID NO: 269
SEQ ID NO: 153	SEQ ID NO: 270
SEQ ID NO: 154	SEQ ID NO: 271
SEQ ID NO: 155	SEQ ID NO: 272
SEQ ID NO: 156	SEQ ID NO: 273
SEQ ID NO: 157	SEQ ID NO: 274
SEQ ID NO: 158	SEQ ID NO: 275
SEQ ID NO: 159	SEQ ID NO: 276
SEQ ID NO: 160	SEQ ID NO: 277
SEQ ID NO: 161	SEQ ID NO: 278
SEQ ID NO: 162	SEQ ID NO: 279
SEQ ID NO: 163	SEQ ID NO: 280
SEQ ID NO: 164	SEQ ID NO: 281
SEQ ID NO: 165	SEQ ID NO: 282

SEQ ID NO: 166	SEQ ID NO: 283
SEQ ID NO: 167	SEQ ID NO: 284
SEQ ID NO: 168	SEQ ID NO: 285
SEQ ID NO: 169	SEQ ID NO: 286
SEQ ID NO: 170	SEQ ID NO: 287
SEQ ID NO: 171	SEQ ID NO: 288
SEQ ID NO: 172	SEQ ID NO: 289
SEQ ID NO: 173	SEQ ID NO: 290
SEQ ID NO: 174	SEQ ID NO: 291
SEQ ID NO: 175	SEQ ID NO: 292
SEQ ID NO: 176	SEQ ID NO: 293
SEQ ID NO: 177	SEQ ID NO: 294
SEQ ID NO: 178	SEQ ID NO: 295
SEQ ID NO: 179	SEQ ID NO: 296
SEQ ID NO: 180	SEQ ID NO: 297
SEQ ID NO: 181	SEQ ID NO: 298
SEQ ID NO: 182	SEQ ID NO: 299
SEQ ID NO: 183	SEQ ID NO: 300
SEQ ID NO: 184	SEQ ID NO: 301
SEQ ID NO: 185	SEQ ID NO: 302
SEQ ID NO: 186	SEQ ID NO: 303
SEQ ID NO: 187	SEQ ID NO: 304
SEQ ID NO: 188	SEQ ID NO: 305
SEQ ID NO: 189	SEQ ID NO: 306
SEQ ID NO: 190	SEQ ID NO: 307
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and (b) amplifying a polynucleotide that encodes for the polypeptide which corresponds to the primer pair selected.

112. A method for detecting *Chlamydia* in an animal comprising (a) providing an animal sample of a tissue suspected to be infected by *Chlamydia*; (b) adding a hybridization probe that hybridizes with a polynucleotide that encodes a *Chlamydia* polypeptide under stringent conditions; and (c) detecting the presence of *Chlamydia* by the presence or absence of said polynucleotide,

wherein said *Chlamydia* polypeptide is homologous to a protein selected from the group consisting of *Chlamydia pneumoniae* proteins selected from the group consisting of CPn0104, CPn0206, CPn0210, CPn0399, CPn0405, CPn0443, CPn0480, CPn0489, CPn0490, CPn0497, CPn0522, CPn0556, CPn0582, CPn0588, CPn0595, CPn0671, CPn0673, CPn0681, CPn0712, CPn0720, CPn0725, CPn0729, CPn0746, CPn0755, CPn0761, CPn0764, CPn0770, CPn0774, CPn0792, CPn0853, CPn0859, CPn0879,

CPn0906, CPn0939, CPn1002, CPn1005, CPn1007, CPn1019, CPn1020, CPn1032, and CPn1058; *Chlamydia trachomatis* proteins selected from the group consisting of CT387, CT476, CT550, CT606.1, CT610, CT642, CT652.1, CT664, CT718, CT763, CT845, and CT848; and *Chlamydia psittaci* proteins selected from the group consisting of Psi0330,

5 Psi0379, Psi0595, Psi0648, Psi0671, Psi0705, Psi0710, Psi0761, Psi0774, Psi1002, Psi1005, Psi1022, and Psi1058; or a fragment thereof.

113. A method of detecting *Chlamydia* in an animal comprising (a) providing an animal sample of a tissue suspected to be infected by *Chlamydia*; (b) adding an antibody, optionally labeled, that forms a complex with a *Chlamydia* polypeptide under conditions
10 suitable for complex formation; and (c) detecting the presence of *Chlamydia* by the presence or absence of said polypeptide,

wherein said *Chlamydia* polypeptide is homologous to a protein selected from the group consisting of *Chlamydia pneumoniae* proteins selected from the group consisting of CPn0104, CPn0206, CPn0210, CPn0399, CPn0405, CPn0443, CPn0480, CPn0489,
15 CPn0490, CPn0497, CPn0522, CPn0556, CPn0582, CPn0588, CPn0595, CPn0671, CPn0673, CPn0681, CPn0712, CPn0720, CPn0725, CPn0729, CPn0746, CPn0755, CPn0761, CPn0764, CPn0770, CPn0774, CPn0792, CPn0853, CPn0859, CPn0879, CPn0906, CPn0939, CPn1002, CPn1005, CPn1007, CPn1019, CPn1020, CPn1032, and CPn1058; *Chlamydia trachomatis* proteins selected from the group consisting of CT387,
20 CT476, CT550, CT606.1, CT610, CT642, CT652.1, CT664, CT718, CT763, CT845, and CT848; and *Chlamydia psittaci* proteins selected from the group consisting of Psi0330, Psi0379, Psi0595, Psi0648, Psi0671, Psi0705, Psi0710, Psi0761, Psi0774, Psi1002, Psi1005, Psi1022, and Psi1058; or a fragment thereof.